Docket	:	R.11-11-002
Exhibit Number	:	DRA - 1
Commissioner	:	Florio
ALJ	:	Long
Witness	:	Peck

DIVISION OF RATEPAYER ADVOCATES
CALIFORNIA PUBLIC UTILITIES COMMISSION

DRA Report on the Proposed Natural Gas Pipeline Safety Enhancement Plan of Southern California Gas Company and San Diego Gas & Electric Company

Executive Summary and Cost Recovery Policy

San Francisco, California
June 19, 2012

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EXECUTIVE SUMMARY AND COST RECOVERY POLICY

I. EXECUTIVE SUMMARY

This exhibit sets forth the Executive Summary and Cost Recovery policy testimony and recommendations of the Division of Ratepayer Advocates (DRA) on Southern California Gas Company's (SoCalGas) and San Diego Gas & Electric's (SDG&E) (collectively referred to as "Applicants" in this Exhibit) Pipeline Safety Enhancement Plan (Plan).

DRA developed these analyses and recommendations pursuant to the Scoping Memo and Ruling of the Assigned Commissioner issued on June 16, 2011 in R.11-02-019, as amended on November 2, 2011, and amended again on February 24, 2012.[1] The Assigned Commissioner's Scoping Memo and Ruling directed parties to serve testimony on the Applicants' Plan by June 19, 2012.

In Exhibit 1, DRA discusses its cost recovery policy recommendations. As a result of these cost recovery policies, DRA recommends:

1. The Applicants' shareholders should be entirely responsible for all expenses associated with hydrostatic testing or associated replacements of those transmission pipelines installed in 1955 and subsequent years for which a reliable record of a pressure test cannot be located.
2. The Applicants' shareholders should be entirely responsible for all expenses associated with hydrostatically testing pipelines installed between 1935 and 1955 for which a reliable record of a pressure test cannot be located.

[1] Commission Decision 12-04-021, issued on April 20, 2012 transferred consideration of the natural gas transmission pipeline testing plans of the Applicants to the Triennial Cost Allocation Proceeding (Application 11-11-002).

3. If the Commission authorizes replacement rather than testing of pipelines placed in service between 1935 and 1955 for which a reliable record of a pressure test cannot be located, the rate of return on equity (ROE) should be adjusted downward by 200 basis points.

In Exhibit 2, DRA's review indicates that the Applicants' Plan has minimal if any engineering analysis and contains proposals for system enhancement beyond the scope of Decision 11-06-017. DRA concludes that the Applicants' Plan may be overly ambitious and lacks adequate support. DRA recommends the Commission adopt lower levels for pipeline Maximum Allowable Operating Pressure (MAOP) validation and funding than those proposed by the Applicants. More specifically, DRA recommends the Commission:

- Address only the pipeline segments the Applicants identified for MAOP validation in Phase 1A. Pipelines identified to be pressure tested or replaced in Phase 1B and Phase 2 should be addressed in the Applicants next General Rate Case (GRC). The Commission will have actual cost data for the pipeline projects after the completion of Phase 1A, and will better assess the reasonableness of pipeline work planned for the later phases.

- Reject the Applicants' proposal to enhance its system beyond the measures required under D.11-06-017.

- Adopt, with modifications, the Base Case Plan wherein the Applicants request funding to pressure test or replace pipelines without MAOP validation.

- Authorize only the funding necessary for the Applicants to perform pressure tests on the Category 4 NTSB Criteria Miles in Phase 1A. These are pipeline segments that are located in Class 3 and 4 locations, and Class 1 and 2 High Consequence Areas (HCAs). At this time, the Applicants' cost estimates for the Plan are classified as "Class 5". Without a better estimate and additional confirmation of pressure test costs, the Applicants should not receive in this proceeding authorization for any funding for Phase 1B or Phase 2 MAOP validation efforts.

- Reject the Applicants' proposal to include pipeline segments located in Class 1 and 2 non-HCAs, referred to as "Accelerated Miles", in Phase

1A because the Applicants have not adequately justified the proposed work.

- Reject the Applicants' proposal to replace, instead of pressure test, 260 miles of pipelines in Phase 1A because the criteria the Applicants' used to identify pipelines for replacement are not adequately supported.

- Reduce the costs proposed by the Applicants in the Plan by $74 for pipelines managed as part of the Applicants' Transmission Integrity Management Program (TIMP). The Applicants are currently receiving funding to manage TIMP pipelines in rates as part of the General Rate Case process. Pipelines that are pressure tested as part of the Plan will meet the requirements of TIMP.

- Reject the proposal to replace wrinkle bends as part of the Plan. The replacement of wrinkle bends should continue to be managed under the TIMP program and not be included as part of the Plan.

- Require the Applicants to consider the location of pipelines as well risk assessments performed under the TIMP and maintenance data collected from Operations and Maintenance (O&M) work activities such as corrosion detection and leak surveys, as part of the sub-prioritization of pipelines for pressure testing. The Applicants' current sub-prioritization methodology does not account for pipeline location, risk assessments from TIMP, or maintenance data in ranking pipeline for MAOP validation.

In DRA Exhibit 2A, DRA provides a review of the Applicants' hydrostatic test cost estimates. DRA finds that the Applicants' hydrostatic test cost estimates are generally unsupported and excessive. DRA provides recommendations for the Commission with respect to the Applicants' proposed costs. This testimony reviews only the cost of performing tests, even though the cost of repairs resulting from hydrostatic testing is included in the Applicants' testimony.

DRA found that that the Applicants' workpapers uniformly and correctly implement the assumptions provided in testimony, with only minor exceptions. However, the Applicants' testimony lacks justification of critical unit costs, such as the cost of water supply, treatment, and disposal costs. The testimony lacks

justification for key loading rates, such as SoCalGas labor and contingency. The Applicants were unable to provide adequate justification for these costs, even in response to specific data requests from DRA.

DRA found the Applicants' variable hydrostatic test costs are vaguely-defined and excessive. Specific DRA recommendations in Exhibit 2A include:

- The Commission should order the Applicants to follow a Water Management Plan to minimize water supply and disposal costs
- DRA support for the Applicants' request for CPUC Assistance in streamlining the permitting process for water disposal
- A lower contingency than proposed by the Applicants
- Reduced hydrostatic test costs be used for determining revenue requirements

In Exhibit 3, DRA reviews the Valve Enhancement Plan submitted by the Applicants. The proposed Valve Enhancement Plan includes two main elements: Valve Enhancements and System Enhancements. For Valve Enhancements, the Applicants propose upgrading existing manual control valves to automatic shutoff valves (ASV) and remote control valves (RCV) and upgrading existing ASVs with RCV functionality. The Applicants propose five project elements in "System Enhancements to Support Valve Enhancements."

The validity of the cost estimates for the Valve Enhancement Plan is difficult to assess. The Applicants state in their testimony that "Cost estimates are preliminary and were developed based on minimal engineering, operational planning, and project execution planning." The Applicants have not provided relevant automatic valve replacement cost history. As a result, there is a great degree of uncertainty embedded in the cost projections. DRA proposes a more gradual upgrading of existing manual valves to ASVs/RCVs, ASVs to RCVs, and the installation of new valves. DRA's approach will give the Applicants and the Commission time to gain more cost, operation, and installation experience to

determine if the Applicants' upgrade plan is "...necessary for the protection of the public"[2] and likely to achieve these objectives. DRA recommends that some of the enhancements the Applicants propose be considered in future GRCs after the initial installations, progress, and program can be evaluated in a comprehensive manner.

The Applicants should be required to provide more detailed and reliable projections based on actual cost data from a sufficient number of completed and comparable automatic valve upgrade projects that can be obtained over the next few years.

In Exhibit 3, DRA recommends:

- The Commission consider only the Phase 1A proposals of the Applicants' Valve Enhancement Plan in this proceeding;
- To reduce the combined Phase 1A capital and O&M expenditures by $88 million as set forth in Table 2;
- The Applicants seek ratepayer funding of their Phase 1B and Phase 2 Valve Enhancement Plan proposals with supporting and detailed cost/benefit analyses in subsequent General Rate Case filings.

In Exhibit 4, DRA reviews the proposed revenue requirements for ratepayer recovery. DRA recommends:

1. The Commission adopt DRA's recommendation that ratepayers be responsible for $69 million ($57 million for SoCalGas; $12 million for SDG&E) in the Applicants' Plan direct costs which correspond to $26.2 million ($21.7 million for SoCalGas; $4.5 million for SDG&E) in total revenue requirements in Phase 1A as shown in Table 2;

[2] *See* Public Utilities Code Section 957.

2. The Commission reject the Applicants' Pipeline Safety Enhancement Cost Recovery Account as proposed and adopt a cap on the annual revenue requirement based on DRA's forecasts;
3. The Commission reject the Applicants' request for an expedited advice letter process requesting approval for any adjustments to the overall level of the Plan funding; and
4. DRA proposes that the Applicants only conduct hydrostatic testing of transmission pipelines in Phase 1A. If the Applicants are granted authority to conduct pipeline replacement, then the Commission should reject the proposed Expedited Advice Letter process.

II. COST RECOVERY POLICY INTRODUCTION

This section sets forth the policy testimony and recommendations of the DRA pertaining to the recovery by Southern California Gas Company (SoCalGas) and San Diego Gas & Electric (SDG&E) (collectively referred to as "Applicants" in this Exhibit) of the costs of their proposed Pipeline Safety Enhancement Plan (Plan).

In the Applicants "Proposed" Plan, SoCalGas has requested incremental revenue requirements of $6.4 million in 2011, $57.7 million in 2012, $100.3 million in 2013, $182.3 million in 2014, and $246.7 million in 2015.[3] SDG&E has requested incremental revenue requirements of $0.9 million in 2011, $0.4 million in 2012, $5.2 million in 2013, $24.5 million in 2014, and $30.7 million in 2015. This amounts to total revenues of $655.1 million over the currently adopted base margin amounts for the recovery of expenses and investment associated with the Proposed Plan.[4] The annual revenue requirements include expenses, return on investments and associated costs for the Applicants' Proposed Plan which includes[5]:

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[3] Amended Testimony of Southern California Gas Company and San Diego Gas & Electric Company in Support of Proposed Natural Gas Pipeline Safety Enhancement Plan (Amended Testimony), pp. 2, 13-14, 105, The Applicant's Plan includes two alternative plans for the Commission and parties to consider, a Base Case Plan and a Proposed Plan. The Base Case Plan purportedly includes strictly the work required under Decision (D.) 11-06-017. The Proposed Plan includes everything included in the Base Case Plan plus additional safety enhancement proposals beyond the measures required under D.11-06-017. The Applicants recommend the Commission adopt the Proposed Plan rather than the Base Case Plan. The Base Case Plan includes testing or replacing pipeline segments that do not have sufficient documentation of pressure testing, proposed interim safety enhancement measures, a plan to in-line inspect (ILI) on piggable pipelines, and a Valve Enhancement Plan. The Proposed Plan includes the Base Case Plan plus the replacement of pipeline segments to mitigate pre-1946 construction and manufacturing methods, proposed technology enhancements (i.e., Fiber Optic Monitors and Methane Detection Monitors), and the development and design of an Enterprise Asset Management System.

[4] Amended Testimony, p. 124, Table X-5.

[5] Amended Testimony, pp. 3-4.

1. Replacing or pressure testing pipeline segments lacking complete, accurate, and verifiable documentation related to their established operating pressures.
2. Use of in-line inspections in parallel with pressure tests.
3. Continued use of the Applicants' proposed interim safety measures.
4. Upgrades in the Applicants' existing valve infrastructure.
5. Equipping replacement pipelines with advanced fiber optic technology and installing methane detection technology.
6. Developing the architecture and design for an Enterprise Asset Management System.

The Applicants address cost recovery in Section X of their Amended Testimony. Among other things, the Applicants propose that the Commission[6]:

- Authorize recovery of the costs incurred to date and to be incurred until the Commission issues a decision on the Applicants' Plan.
- Approve the Applicants' capital forecasts and direct Operation and Maintenance (O&M) forecasts for the implementation of the Plan during the time period of 2012 through 2015.
- Approve the revenue requirements resulting from the Applicants' capital and O&M forecasts for the years of 2011 through 2015.
- Authorize the Applicants to include a request to approve the capital and O&M forecasts and resulting revenue requirements for subsequent years (i.e., 2016 through 2022) of the Plan in the Applicants' respective General Rate Cases (GRCs) or other appropriate proceedings.
- Approve the Applicants' request to track Plan costs separately from other pipeline costs and to allocate those costs using the Equal Percent of Authorized Margin (EPAM) method.

[6] Amended Testimony, pp. 5-6.

- Approve the Applicants' request to recover costs from customers as a "PSEP Surcharge."

The Assigned Commissioner's Scoping Memo and Ruling bifurcated the review of the Plan cost issues into two phases of the proceeding.[7] In this first phase (Phase 1), parties will address shareholder versus ratepayer cost responsibility cost issues. The Plan rate design and cost allocation issues will be addressed by parties later in the second phase (Phase 2) of this proceeding.

The Applicants state they are not seeking cost recovery to pressure test or replace pipelines placed in service after 1970. If a reliable record of a strength test for post-1970 pipe segments cannot be located, the Applicants agree to strength test or replace these post-1970s pipe segments at shareholder expense.[8]

In Decision 12-04-021, the Commission authorized an interim memorandum account for each of the Applicants in order to record for later Commission ratemaking consideration the costs of Applicants' Plan over the first 12 months of implementation. The Decision also stated that authorization of the memorandum account does not ensure any recovery from ratepayers.

III. SUMMARY OF RECOMMENDATIONS

DRA's cost recovery policy position is consistent with its position in regards to the Pacific Gas and Electric Company (PG&E) Pipeline Safety Enhancement Plan.[9]

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[7] See Assigned Commissioner's Scoping Memo and Ruling, February 24, 2012, p. 9, "We will examine all issues associated with costs allocated to ratepayers, including all Safety Enhancement rate design issues, in Phase 2. That is, we will only consider the Safety Enhancement program costs allocable to ratepayers and otherwise adopted or approved in Phase 1 concurrent with all other rate design and cost allocation issues included in Phase 2. Note that we will address shareholder versus ratepayer cost responsibility in Phase 1."

[8] Amended Testimony, p. 18.

[9] See DRA Report on the Pipeline Safety Enhancement Plan of Pacific Gas and Electric Company, Exhibit DRA-02, Policy-Cost Recovery, January 31, 2012, R.11-02-019.

As applicable, DRA's positions and basis for recommendations are similar in regards to the Applicants' Plan and PG&E's Pipeline Safety Enhancement Plan. DRA recommends the following with respect to cost recovery:

1. The Applicants' shareholders should be entirely responsible for all expenses associated with hydrostatic testing or associated replacements of those transmission pipelines installed in 1955 and subsequent years for which a reliable record of a pressure test cannot be located.

2. The Applicants' shareholders should be entirely responsible for all expenses associated with hydrostatically testing pipelines installed between 1935 and 1955 for which a reliable record of a pressure test cannot be located.

3. If the Commission authorizes replacement rather than testing of pipelines placed in service between 1935 and 1955 for which a reliable record of a pressure test cannot be located, the rate of return on equity (ROE) for those capital investments should be adjusted downward by 200 basis points.

IV. DISCUSSION OF DRA RECOMMENDATIONS

A. Recommendation 1: The Applicant's shareholders should be entirely responsible for all expenses associated with hydrostatic testing or associated replacements of those transmission pipelines installed in 1955 and subsequent years for which a reliable record of a pressure test cannot be found.

On June 9, 2011, the Commission issued Decision (D.)11-06-017 which ordered all California natural gas transmission operators to develop Implementation Plans for Commission consideration to achieve the goal of orderly and cost effective replacement or testing all natural gas transmission pipelines that have not been pressure tested or where the operator is missing the test record or has an insufficiently complete test record. The Decision concludes that a pressure test

record must include all elements required by the regulations in effect when the test was conducted. For pressure tests conducted prior to the effective date of General Order 112, one hour is the minimum acceptable duration.[10]

DRA recommends that the Applicants be held responsible for the costs associated with hydrostatic testing or replacement for all transmission pipelines installed in 1955 and subsequent years in the absence of records that show a test was performed in accordance with industry standards. The basis for this recommendation is that the industry standard (i.e., ASA B31.1.8-1955) in 1955 required hydrostatic testing for new pipe and maintaining the record associated with the hydrostatic test. Assuming the Applicants were following the pipeline industry standard in 1955 and beyond, they would have the record required by the Commission to ensure they are properly determining the Maximum Allowable Operating Pressure (MAOP) of the associated pipeline segments.

The ASA Code was created among other things to serve as a standard of reference for minimum safety requirements by equipment manufacturers, architects, engineers, erectors, and others concerned with pressure piping. The Code specified requirements for pressure testing after installation of pipelines. The Code specified all piping systems classified as Division 1 to be capable of withstanding a hydrostatic test of one and one-half times the normal service pressure. Various modifications of the ASA Code were made throughout ensuing years.

In 1955, ASA B31.1.8-1955 established detailed requirements for pipe materials, welding, fabrication, installation, testing, operation and maintenance. ASA B31.1.8-1955 contained requirements covering:

- Determination of wall thickness
- Determination of yield strength based on American Petroleum Institute (API) standards

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[10] See D.11-06-017, Ordering Paragraph (OP) #3.

• Hydrostatic testing for new pipe and recordkeeping associated with the testing

• Cleaning pipe from inside and outside and visually inspecting it to discover defects

• Welder qualifications and testing of welds

To the extent that the Applicants failed to comply with the ASA B31.1.8-1955 requirements (i.e., hydrostatic testing new pipe and recordkeeping associated with the testing) when pipeline segments were installed in 1955 or subsequent years, Applicants' shareholders should be entirely responsible for all expenses associated with hydrostatic testing or associated replacements for which a reliable pressure test record cannot be found.

Section 841.417 under the Records Section of the 1955 ASA Code states, "The operating company shall maintain in its file for the useful life of each pipeline and main, records showing the type of fluid used for test and the test pressure."[11] Even if for some reason an entity was remiss in the past regarding keeping appropriate records for the hydrostatic tests performed in the past, the ASA code adopted in 1955 makes it clear that records for hydrostatic tests are to be maintained for the useful life of the pipeline and main. This was 20 years after the initial ASA Code adopting hydrostatic tests was adopted in 1935. Any utility that hadn't been following the industry standard for hydrostatic testing and keeping accurate records of the test in its files should have been doing so by 1955. The Applicants' ratepayers had nothing to do with the Applicants' failure to follow the industry standard. Any investment associated with the Applicants' Plan, that is required to replace existing gas transmission pipeline installed in 1955 or subsequent years should be borne entirely by the Applicants' shareholders.

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[11] ASA B31.1.8-1955, Section 841.417, p. 50.

The ASA industry codes provide clear guidance to gas utilities regarding the requirements for hydrostatic testing of pipelines. Hydrostatic testing should have been performed by pipeline operators consistent with industry standards representing the best practices as of the date the pipeline was installed. The records associated with hydrostatic tests should have been retained and kept on file by the pipeline operator.

For many years, the Commission has had a General Order which directed utilities to retain all records pertaining to the original cost of property and additions and betterments. Commission General Order (GO) 28 was approved on September 12, 1912 and became effective October 10, 1912. The GO was reissued on December 22, 1947. The GO states,

> "That each and every public utility and common carrier subject to the jurisdiction of this Commission, … shall from the date of October 10, 1912, preserve all records, memoranda and papers supporting each and every entry in the following general books of such public utilities and common carriers: …
>
> Also:
>
> All records, contracts, estimates and memoranda pertaining to original cost of property and to Additions and Betterments…"

If the Applicants had properly retained records associated with the cost of hydrostatic testing that would also allow for verification that a test was performed on the pipeline.

The Applicants admit detailed knowledge of and their own involvement in the development of and implementation of the ASA B31.1.8-1955 standard. Specifically, in a data response to DRA they state:

> SoCalGas/SDG&E and their predecessors were key stakeholders and participants in the development of industry standards, and through the

> years have been actively involved in all phases of standards development and implementation.[12]

The Applicants admit that key Applicant personnel were directly involved in the development of the ASA B31.1.8-1955 standard:

> "Mr. Fredrick A. Hough, Vice president of Southern Counties Gas Company[13], served as Chairman of the newly formed Section 8 Committee of the ASA B31.1 Code in 1952, with Mr. C.T. Sweitzer of Southern California Gas Company serving as Committee Secretary. The first Code document published under the Section 8 committee was in 1955 as ASA B31.1.8 Gas Transmission and Distribution Piping Systems."

Finally, the Applicants are confident in the safety and integrity of their system and believe that they have always met or exceeded industry standards and find it reasonable to assume that they were following ASA B31.1.8-1955 once it was established:

> Given the level of participation and leadership provided by members of our companies, it is highly probable that the ASA B31.1 Standards governing pressure test activity prior to 1961 were followed. [14]

There is also evidence that the Applicants pressure tested pipes as far back as 1949 and there is evidence that the Applicants have retained test records.[15]

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[12] Response to Data Request DRA-DAO-27-04.

[13] Southern Counties Gas Company was one of two gas companies owned by Pacific Lighting Corporation that were merged with SoCalGas in 1970.

[14] Id.

[15] Response to Data Request DRA-DAO-16-06

In testimony, the Applicants have proposed to absorb hydrostatic testing and replacement costs related to pipeline segments installed after 1970.[16] The Applicants do not specify why they have chosen the time-period of post-1970 or what the basis is for establishing an Applicant shareholder responsibility for the Plan costs.[17]

The Commission's Consumer Protection and Safety Division (CPSD) has stated on multiple occasions that if pipeline operators cannot provide sufficient hydrostatic test records for pipeline segments installed after June 30, 1961 then those segments must be tested or replaced at the Applicant' shareholder expense.[18] [19]

As described in this exhibit, DRA has taken a different approach in its proposed cost recovery proposal from that suggested by CPSD. For the reasons described above, all costs of hydrostatic testing or replacing pipelines installed in 1955 or subsequent years for which a reliable record of a pressure test cannot be located showing that a hydrostatic test was properly performed, should be borne by the Applicants' shareholders.

B. Recommendation 2: The Applicant's shareholders should be entirely responsible for all expenses associated with hydrostatically testing pipelines installed between 1935

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[16] Amended Testimony, p. 18.

[17] In the Applicant's Comments on The CPSD Technical Report, Jan 27, 2012, page 21, the Applicants discuss D.11-06-017, GO 112, and the year 1970.

[18] Technical Report of CPSD Regarding the Applicant's PSEP, January 17, 2012, page 24; Applicant's PSEP Workshop, May 30, 2012.

[19] CPSD's shareholder cost-sharing order is based on the date (July 1, 1961) that the Commission's GO 112 codified safety requirements for transmission pipelines in California. GO 112 integrated the ASA B31.8 Standard for Pressure Piping and set rules to govern the design, testing and maintenance of gas transmission pipelines.

and 1955 for which a reliable record of a pressure test cannot be located.

Pressure testing of natural gas transmission pipelines has been an industry standard for over 75 years.[20] Attachment 1 provides information pertaining to the American Standard Code for Pressure Piping. The attachment provides a summary of the development of national codes and standards for pressure piping. The American Standards Association (ASA) developed the first national code for pressure piping in 1935. Specifically, the 1935 ASA Code specifies that for new welded pipe lines the welded joints shall be capable of withstanding a hydrostatic test of one and one-half times the normal service pressure.

To the extent that the Applicants followed the industry standard at the time (i.e., 1935 to 1955) and pressure tested new pipe, the Applicants would now be able to demonstrate to the Commission that they are properly determining the MAOP of the associated pipe. In cases where the Applicants cannot properly determine the MAOP for pipe installed between 1935 to 1955 and are now faced with a requirement to hydrostatically test that pipe per D.11-06-017, those costs should be borne by the Applicants' shareholders, not ratepayers. For this reason, all costs of hydrostatic testing associated with the Applicants' Plan on pipelines installed between 1935 and 1955 with no missing or insufficient records showing that a hydrostatic test was properly performed, should be borne by the Applicants' shareholders.

C. Recommendation 3: If the Commission authorizes replacement rather than testing of pipelines placed in service between 1935 and 1955 for which a reliable record of a pressure test cannot be located, the rate of return on equity (ROE) for those capital investments should be adjusted downward by 200 basis points.

[20] See Attachment 1.

The Amended Scoping Memo in the Gas Safety Order Instituting Rulemaking (OIR) raised the issue of an appropriate rate of return for the capital investments associated with the pipeline safety enhancement plans.[21] Given the extraordinary safety investments and accelerated implementation the Applicants propose in their Plan, applying a rate of return adjustment on capital expenditures is warranted in certain instances. Specifically, a downward adjustment to the gas utilities' ROE is warranted for investment in new pipeline to replace pipeline that was installed between 1935 and 1955 for which a reliable record of a pressure test cannot be located in the Applicants' Plan. DRA proposes a 200 basis point decrease to the authorized rate of return on these capital expenditures. As demonstrated above in Section B, the ASA Code requiring hydrostatic tests were adopted in 1935. To the extent that the Applicants followed industry standards at the time (i.e., 1935 to 1955) and pressure tested new pipe, the Applicants would now be able to demonstrate to the Commission that they are properly determining the MAOP of the associated pipe. In cases where the Applicants cannot properly determine the MAOP for pipe installed between 1935 to 1955 and are now faced with replacing that pipe per D.11-06-017 an adjustment to the rate of return on those investments is warranted. This adjustment will mitigate the impact of the investment on ratepayers while not placing the entire burden upon the Applicants. DRA's proposal:

- Strikes an equitable balance between ratepayers and shareholders.
- Recognizes that transmission pipelines installed prior to 1955 and after 1935 should have been properly hydrostatically tested pursuant to industry standards, and records maintained.
- Recognizes that pipelines installed prior to 1955 will be in excess of 60 years old by 2015,
- Recognizes that 60 years is close to the average economic life used for depreciation purposes for pipelines,

[21] R11-02-019 Amended Scoping Memo and Ruling, issued November 2, 2011, pp. 3, A3.

- Recognizes that transmission pipelines that are properly maintained can continue to operate safely well beyond the average economic life used for purposes of depreciation,
- Gives consideration to the fact that any pre-1955 transmission pipelines which are replaced, will be replaced with a new transmission pipeline constructed with the latest state of the art materials and construction techniques,
- Strikes a fair balance given the acceleration of pipeline replacement that may occur pursuant to the Applicants' Plan relative to the status quo average annual pipeline investment.

In consideration of the various factors that are summarized above, DRA's proposed decrease of 200 basis points to the Applicants' ROE for new investment related to the Applicant's Plan of pipes originally installed between 1935 and 1955 for which a reliable record of a pressure test cannot be located is both equitable and responsive to the Commission's directives.

As demonstrated in exhibit DRA-4, the Applicants have consistently exceeded the rate of return on equity authorized by the Commission.[22] As a result, DRA's cost recovery policy recommendations provided here represent an equitable and balanced approach for ratepayers and the Applicants' shareholders to share of the costs of implementing the Plan.

[22] Exhibit DRA-4, p. 26.

ATTACHMENT 1 – AMERICAN STANDARD CODE FOR PRESSURE PIPING

American Standard Code for Pressure Piping:

Power, Gas and Air, Oil, District Heating, Refrigeration, Fabrication Details, Materials

1935

The first national code for pressure piping was issued in 1935 by the American Standards Association and sponsored by the American Society of Mechanical Engineers. The need for a national code on pressure piping became evident during the period of 1915 to 1925. The Power Piping Society was the first to publish a standard specification for power piping in 1915. Numerous parties also published technical papers dealing with pressure piping. A committee appointed by the Ohio State Department of Industrial Relations issued a draft for a state code for pressure piping titled "Code of Safety Rules and Regulations Covering the Installation of High and Low Pressure Steam Piping" in 1925.[23]

As a result of the distribution of the draft for an Ohio state code, many interested groups believed that the need for a national code for pressure piping was needed. In 1926, the American Society of Mechanical Engineers requested the American Standards Association (ASA) to develop an American Standard for pressure piping.[24]

The ASA issued the first national Code for Pressure Piping: Power, Gas and Air, Oil, and District Heating in 1935 (B31). The ASA Code for Pressure Piping (ASA Code) represents a standard of minimum safety requirements for: (1) the selection of suitable materials and reference to standard specifications by which they may be secured, (2) the designation of proper dimensional standards for the elements comprising piping systems, (3) the design of the component parts as well as the assembled unit including necessary supports, (4) the erection of these systems, and (5) the test of the elements before erection and of

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[23] ASA Code for Pressure Piping-1935, Foreword, page 2

[24] ASA Code for Pressure Piping-1935, pages 2 and 3

the completed systems after erection. The ASA Code was created to serve as a guide to state and municipal authorities in the drafting of their regulations and as a standard of reference for minimum safety requirements by equipment manufacturers, architects, engineers, erectors, and others concerned with pressure piping.[25]

Section 2 of the ASA Code contains a section for Gas and Air Piping Systems that covers the design, manufacturer, installation, and tests of piping systems intended for conveying only air, fuel gas, or illuminating gas. This section includes city gas distribution systems, cross-country transportation systems, piping in gas manufacturing plants, in gas or air compressing stations, and in process plants.[26]

The ASA Code divides the gas and air piping systems into two divisions based on the difference in hazard involved.

(1) Division 1 includes all gas and air piping systems constructed (a) in power, industrial, and gas manufacturing plants wherever located and (b) anywhere within the boundaries of cities and villages.

(2) Division 2 includes all gas and air piping systems constructed (a) in compressing stations, and cross-country transportation systems and (b) outside the boundaries of cities and villages, and gas and air piping systems not included in Division 1.[27]

The ASA Code specifies Hydrostatic Tests for Division 1 before erection in which valves and fittings shall be capable of withstanding a hydrostatic shell test, made before erection, equal to one and one-half times the maximum working gas or air pressure.[28]

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[25] ASA Code for Pressure Piping-1935, page 11

[26] ASA Code for Pressure Piping-1935, page 45, Section 201 and 202

[27] ASA Code for Pressure Piping-1935, page 45 and 46, Section 203

[28] ASA Code for Pressure Piping-1935, page 55, Section 222 (a)

The ASA Code also specifies Hydrostatic Tests for Division 1 after erection (welded pipe lines) in which all piping systems containing welded joints shall be capable of withstanding a hydrostatic test of one and one-half times the normal service pressure.[29]

The ASA Code specifies Hydrostatic Tests for Division 2 before erection in which valves and fittings in piping systems shall be capable of withstanding a hydrostatic test pressure of not less than one and one-half times the maximum working pressure for which the valves and fittings are rated.[30]

1942

The American Standards Association (ASA) issued the second national Code for Pressure Piping: Power, Gas and Air, Oil, District Heating, Refrigeration, Fabrication Details, and Materials in 1942.

The 1942 ASA Code extensively revised and brought up to date the 1935 ASA Code for Pressure Piping as necessitated by the significant changes in piping which had taken place since 1935. Some of the significant changes in piping since the ASA Code was published in 1935 were the increased importance of welded joints; standard dimensions have been prescribed for factory-made butt-welding and socket-welding fittings and their use has become common practice; welding-end valves with welded bonnets have been developed and adopted; pressures and temperatures have advanced to new high points; and new material specifications and dimensional standards have been formulated. The 1942 ASA Code revised several sections of the code as well as added a new section on refrigeration piping systems and a new chapter on welded branch connections, and fabricated or cast specials to the fabrication detail section.[31]

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[29] ASA Code for Pressure Piping-1935, page 55 and 56, Section 222 (b)

[30] ASA Code for Pressure Piping-1935, page 57, Section 223 (a)

[31] ASA Code for Pressure Piping-1942, page 7, Introduction

Section 2 of the ASA Code specifies that “every valve and fitting shall be capable of withstanding an internal hydrostatic mill test without showing failure, leakage, distress, or distortion other than elastic distortion at a pressure not less than one and one-half times the maximum working pressure for which the manufacturer guarantees it.”[32]

The ASA Code also requires pressure testing after installation. The ASA Code states, “Every gas and air piping system shall be capable of withstanding a test pressure of:

(1) 150 percent of the maximum service pressure, for systems within the scope of Division 1 and

(2) 50 psi greater than the maximum service pressure, for systems within the scope of Division 2.

A test made after installation may be made with air or gas pressure which for systems within the scope of Division 1 need not exceed 120 per cent of the maximum allowable working pressure, and for systems within the scope of Division 2 shall not exceed 120 per cent of the maximum allowable working pressure.”[33]

1944 and 1947

In 1944, the American Standards Association (ASA) made changes and additions to the 1942 ASA Code for Pressure Piping in Supplement Number 1: American Standard Code for Pressure Piping. In 1947, the American Standards Association (ASA) made further changes and additions to the 1942 ASA Code for Pressure Piping in Supplement Number 2: American Standard Code for Pressure Piping. These supplements introduced new dimensional and material standards, a new formula for pipe wall thickness, and more comprehensive

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[32] See ASA Code for Pressure Piping-1942, page 54, Section 222 (a)

[33] See ASA Code for Pressure Piping-1942, page 62, Section 223

requirements for instrument and control piping.[34] These supplements did not modify the pressure testing of piping systems.

1951

The American Standards Association (ASA) issued the national Code for Pressure Piping: Power, Gas and Air, Oil, District Heating, Refrigeration, Fabrication Details, Materials, and Appendix in 1951. Continuing increases in the severity of service conditions and concurrent developments of new materials and designs equal to meeting these higher requirements, pointed to the need for more extensive changes in the code. Because of the wide field involved, over 30 to 40 different engineering societies, government bureaus, trade associations, institutes and the like have one or more representatives on the sectional committee, plus a few "members at large" to represent general interests.[35]

Following the reorganization of Sectional Committee B31 in 1948, an intensive review of the 1942 code resulted in: (1) a general revision and extension of requirements to agree with present day practice; (2) the revision of references to existing dimensional standards and material specifications and the addition of references to new ones; and (3) the clarification of ambiguous or conflicting requirements. The ASA Code was designated as an American Standard in 1951 with the designation B31.1-1951.[36]

Section 2 of the ASA Code continues to group the gas and air piping systems into Division 1 and Division 2.

The ASA Code specifies that before installation, every valve and fitting (except steel butt-welding fittings and special fittings fabricated by welding) to be capable of withstanding without failure, leakage, distress, or distortion other than

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[34] ASA Code for Pressure Piping-1951, Foreword
[35] ASA Code for Pressure Piping-1952, Foreword
[36] ASA Code for Pressure Piping-1952, Foreword

elastic distortion an internal hydrostatic pressure of one and one-half times the maximum service pressure for which the manufacturer guarantees it.[37]

The ASA Code also specifies pressure testing after installation. The Code states, “Every piping system within the scope of this section shall be capable of withstanding a test pressure of:

(1) 150 percent of the maximum service pressure, for systems included in Division 1 and

(2) 50 psi greater than the maximum service pressure, for systems included in Division 2.

Where an internal fluid pressure test is made after installation, it shall not exceed 150 per cent of the maximum allowable working pressure for a system included in Division 1 or 50 psi greater than the maximum service pressure or 120 per cent of the maximum allowable working pressure, whichever is greater, for a system included in Division 2.”[38]

1952

The American Standards Association (ASA) issued the first edition of the American Standard Code for Pressure Piping, Section 8, Gas Transmission and Distribution Piping Systems in 1952. Section 8 provides an integrated document for gas transmission and distribution piping that would not require cross-referencing to other sections of the Code.[39]

The ASA B31.1.8 Code prescribes the minimum requirements for the design, fabrication, installation, testing, and operation of piping systems for conveying substantially noncorrosive combustible gases. B31.1.8 includes piping in cross-country gas transportation systems, in gas compressing stations, and in gas distribution systems, as well as the elements of such piping, including

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[37] ASA Code for Pressure Piping-1951, page 27

[38] ASA Code for Pressure Piping-1951, page 28, Section 223 (a) and (b)

[39] ASA B31.8-1952, Foreword

for example, the pipe, valves, fittings, flanges, bolting, gaskets, and components such as gas storage lines, automatic valve reservoirs, and pulsation dampeners constructed of pipe and/or fittings.[40]

B31.1.8 requires hydrostatic pressure testing before installation. B31.1.8 requires every cast-iron pipe manufactured for use in piping systems within the scope of this section shall be subjected to and safely withstand an internal hydrostatic mill test without showing failure, leakage, or distress at a pressure not less than provided in the appropriate specification of those enumerated in paragraph 826 of B31.1.8 and not greater than that which would produce a stress equal to one-half the tensile strength. B31.1.8 provides other hydrostatic testing specifications for pipes made of materials other than cast iron.[41]

B31.1.8 also requires pressure testing of every piping system after installation. B31.1.8 requires that every piping system shall be capable of withstanding after installation an internal fluid pressure of

(a) 50 psi greater than the maximum service pressure for systems in cross-country gas transportation systems and gas compressing stations extending through sparsely populated or rural territories within the legal boundaries of cities or villages

(b) 150 per cent of the maximum service pressure for systems in piping systems within the legal boundaries of cities or villages.

If an internal fluid pressure test is made after installation, it shall not exceed 50 psi greater than the maximum service pressure or 120 per cent of the maximum allowable working pressure, whichever is greater, for a system included in cross-country gas transportation systems and gas compressing

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[40] ASA B31.8-1952, page 11

[41] ASA B31.8-1952, page 12

stations or 150 per cent of the maximum allowable working pressure for a system included in piping systems within the legal boundaries of cities or villages.[42]

1955

The ASA organized a new Sectional Committee B31 in 1952 to revise Section 8. In 1955, the ASA issued the second edition of the American Standard Code for Pressure Piping, Section 8, Gas Transmission and Distribution Piping Systems.[43] The Sectional Committee B31 invited some 30 to 40 different engineering societies, government bureaus, trade associations, institutes and the like have one or more representatives on the sectional committee, plus a few "members at large" to represent general interests.[44]

Mr. Fredrick A. Hough, Vice president of Southern Counties Gas Company, served as Chairman of the Section 8 Committee of the ASA B31.1 Code with Mr. C.T. Sweitzer of Southern California Gas Company serving as Committee Secretary.

Section 8 covers the design, fabrication, installation, inspection, testing, and the safety aspects of operation and maintenance of gas transmission and distribution systems, including gas pipelines, gas compressor stations, gas metering and regulating stations, gas mains, and gas services up to the outlet of the customer's meter set assembly. Section 8 also includes the requirements for gas storage equipment of the closed pipe type fabricated or forged from pipe or fabricated from pipe and fittings, and gas storage lines.[45]

Section 8 covers the conditions of use of the elements of the piping systems such as the pipe valves, fittings, flanges, bolting gaskets, regulators, pressure vessels, pulsation dampeners, and relief valves.[46] The requirements of

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[42] ASA B31.8-1952, page 14, Section 807 (c,1) and (c,2); page 26, Section 824

[43] ASA B31.8-1955, Foreword

[44] ASA B31.8-1955, page 6

[45] ASA B31.8-1955, page 8, Section 804.1

[46] ASA B31.8-1955, page 8, Section 804.2

Section 8 are adequate for safety under conditions normally encountered in the gas industry. The ASA intends that all work performed within the scope of Section 8 shall meet or exceed the safety standards prescribed in Section 8.[47]

This is the first time that ASA no longer divides the gas and air piping systems into Divisions and instead divides the systems into Class locations. Section 8 provides different requirements for different class locations.

1. Class 1 locations include waste lands, deserts, rugged mountains, grazing land, and farm land, and combinations of these.
2. Class 2 locations include areas where the degree of development is intermediate between Class 1 locations and Class 3 locations. Fringe areas around cities and towns, and farm or industrial areas where the one-mile density exceeds 20 or the ten-mile density index exceeds 12 fall within this location class.
3. Class 3 locations include areas subdivided for residential or commercial purposes where, at the time of construction of the pipeline or piping system, 10% or more of the lots abutting on the street or right-of-way in which the pipe is to be located are built upon, and a Class 4 classification is not called for. Areas completely occupied by commercial or residential buildings with the prevalent height of three stories or less can be classified as Class 3.
4. Class 4 locations include areas where multistory (4 or more floors above ground) buildings are prevalent and where there may be numerous other utilities underground.[48]

Section 841.41 specifies that all pipelines, mains and services shall be tested after construction. This is the first time the ASA uses the specified minimum yield strength (SMYS) term. All pipelines and mains to be operated at

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[47] ASA B31.8-1955, page 8, Section 804.4

[48] ASA B31.8-1955, pages 36 and 37, Section 841

a hoop stress of 30% or more of the specified minimum yield strength of the pipe shall be given a field test to prove strength after construction and before being placed in operation.

1. Pipelines and mains located in Location Class 1 shall be tested either with air or gas to 1.1 times the maximum operating pressure or hydrostatically to at least 1.1 times the maximum operating pressure.
2. Pipelines or mains located in Location Class 2 shall be tested wither with air to 1.25 times the maximum operating pressure of hydrostatically to at least 1.25 times the maximum operating pressure.
3. Pipelines and mains in Location Classes 3 and 4 shall be tested hydrostatically to a pressure not less than 1.4 times the maximum operating pressure.
4. Hydrostatic testing of mains and pipelines in Location Classes 3 and 4 do not apply if at the time the pipeline or main is first ready for test, one or both of the following conditions exist:
    a. The ground temperature at pipe depth is 32º F. or less, or might fall to that temperature before the hydrostatic test could be completed, or
    b. Water of satisfactory quality is not available in sufficient quantity.
    c. In such cases an air test to 1.1 times the maximum operating pressure shall be made.[49]

Section 841.42 specifies that steel piping that is to operate at stress less than 30% of the SMYS but in excess of 100 psi in location classes 2, 3, and 4 shall be tested to at least 1.5 times the maximum operating pressure.[50]

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[49] ASA B31.8-1955, pages 48 to 50, Section 841.41

[50] ASA B31.8-1955, page 50, Section 841.42

Record Keeping Requirements:

This is the first time that ASA specifies record keeping of each pipeline and main. Section 8 requires that the operating company shall maintain in its file for the useful life of each pipeline and main, records showing the type of fluid used for test and the test pressure.[51]

1958

The ASA issued a new version of American Standard: Gas Transmission and Distribution Piping Systems (ASA B31.8) in 1958.

The strength testing requirements and record keeping requirements in Section 841 remains the same as the ASA B31.8 standards issued in 1955.

1963

The ASA issued a new version of American Standard: Gas Transmission and Distribution Piping Systems (ASA B31.8) in 1963.

Section 841.41 specifies that all pipelines, mains and services shall be tested after construction. All pipelines and mains to be operated at a hoop stress of 30% or more of the specified minimum yield strength of the pipe shall be given a field test to prove strength after construction and before being placed in operation.

1. Pipelines and mains located in Location Class 1 shall be tested either with air or gas to 1.1 times the maximum operating pressure or hydrostatically to at least 1.1 times the maximum operating pressure.
2. Pipelines or mains located in Location Class 2 shall be tested wither with air to 1.25 times the maximum operating pressure of hydrostatically to at least 1.25 times the maximum operating pressure.

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[51] ASA B31.8-1955, page 50, Section 841.417

3. Pipelines and mains in Location Classes 3 and 4 shall be tested hydrostatically to a pressure not less than 1.4 times the maximum operating pressure.[52]+

4. Hydrostatic testing of mains and pipelines in Location Classes 3 and 4 do not apply if at the time the pipeline or main is first ready for test, one or both of the following conditions exist:

    d. The ground temperature at pipe depth is 32º F. or less, or might fall to that temperature before the hydrostatic test could be completed, or

    e. Water of satisfactory quality is not available in sufficient quantity.

    f. In such cases an air test to 1.1 times the maximum operating pressure shall be made.[53]

Section 841.42 specifies the tests required to prove strength for pipelines and mains to operate at less than 30% of the specified minimum yield strength (SMYS) of the pipe, but in excess of 100 psi. Steel piping that is to operate at stresses less than 30% of the SMYS in location Class 1 in which gas or air is the test medium, a leak test shall be made at a pressure in the range of 100 psi to that required to produce a hoop stress of 20% of the minimum specified yield, or the line shall be walked while the hoop stress is held at approximately 20% of the specified minimum yield.[54]

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[52] ASA B31.8-1963, pages 31 and 32, Section 841.412

[53] ASA B31.8-1955, page 32, Section 841.413

[54] ASA B31.8-1963, page 33, Sections 841.42 and 841.433

Record Keeping Requirements:

The record keeping requirements in Section 841 remains the same as the ASA B31.8 standards issued in 1955.[55]

[55] ASA B31.8-1963, page 33, Section 841.417

ATTACHMENT 2 - QUALIFICATIONS

QUALIFICATIONS AND PREPARED TESTIMONY
OF
DAVID PECK

Q.1. Please state your name and address.

A.1. My name is David Peck. My business address is 505 Van Ness Avenue, San Francisco, California 94102.

Q.2. By whom are you employed and in what capacity?

A.2. I am employed by the California Public Utilities Commission in the Energy Cost of Service and Natural Gas (ECOS/NG) Branch of the Division of Ratepayer Advocates (DRA) as a Program and Project Supervisor.

Q.3. Please provide a brief description of your educational background and professional experience.

A.3. I have Bachelor of Science Degree with a double major in Industrial Engineering and Computer Science from the University of Wisconsin, Madison. I have also earned a Master of Science Degree in Industrial Engineering and Management Sciences from Arizona State University as part of a Motorola-ASU Industrial Fellowship award. From 1993 to 2007, I have been employed in the Semiconductor and Semiconductor Equipment industries where I have managed engineering development programs and performed systems design research and analysis. I have been employed by the California Public Utilities Commission since October 2007. I have testified as an expert witness in nine cases on topics including demand response, distributed solar PV, conventional generation, and Long Term Procurement Planning (LTPP). I also prepare protests, comments, discovery, analysis, and advocate for DRA in many energy procurement proceedings before the Commission. As of 2011, I am the Program and Project Supervisor for DRA's Natural Gas Section where I serve as project manager and oversee staff's analysis and preparation of expert testimony in natural gas utility procurement and policy proceedings, cost allocation proceedings, interstate pipeline capacity matters, natural gas rulemakings and investigations, and gas procurement incentive mechanisms.

Q.4. What is the area of your responsibility in this proceeding?

A.4 I am sponsoring Exhibit DRA-1, Executive Summary and Cost Recovery Policy.

Q.5 Does this conclude your prepared direct testimony?

A.5 Yes, it does.